



# AFCTN Test Report

## 94-088

AFCTB-ID  
94-024

Technical Illustration Transfer  
Using:

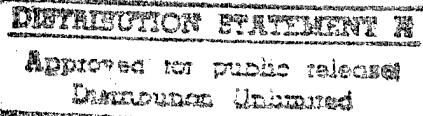
Texas Instruments' Data  
Supporting:

Naval Air System Command's  
JSOW Program  
(Contract #N0019-91-C-0196)

MIL-D-28003 (CGM)

Quick Short Test Report

06 April 1994



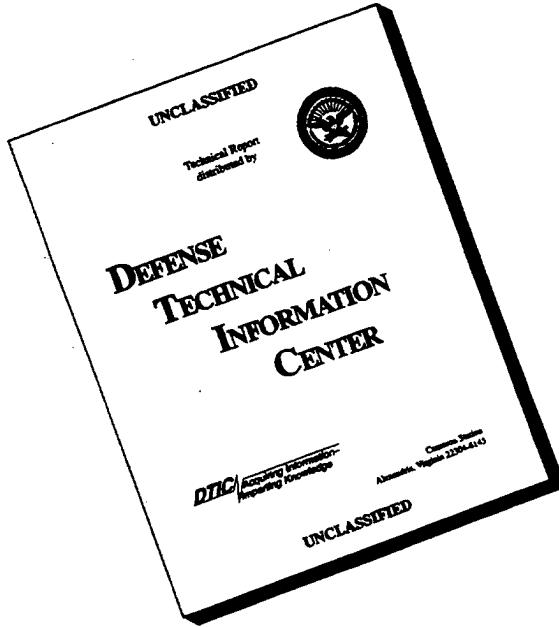
DTIC QUALITY INSPECTED 3



Prepared for:  
Electronic Systems Center  
Air Force CALS Program Office  
Det 2 HQ ESC/AV-2  
4027 Colonel Glenn Hwy, Suite 300  
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**Quick Short Test Report**

**06 April 1994**

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# Air Force CALS Test Bed

## *Notification of Test Results*

**06 April 1994**

This notice documents the results of an Air Force CALS Test Bed (AFCTB) Quick Short Test Report (QSTR) evaluation of data submitted by:

### **Texas Instruments**

Identified as follows:

Title:	<b>Technical Illustration Transfer</b>
Program:	<b>JSOW</b>
Program Office:	<b>Naval Air System Command</b>
Contract No.:	<b>N0019-91-C-0196</b>
QSTR No.:	<b>AFCTB-ID 94-024</b>

Received on the following media:     **Electronic Transfer via the Internet**

The results of the AFCTB Quick Short Test evaluation are as follows:

MIL-STD-1840A Standard	<b>Pass</b>
MIL-STD-1840A Media Format:	<b>Pass</b>
MIL-D-28000A IGES:	<b>N/A</b>
MIL-M-28001A SGML:	<b>N/A</b>
MIL-R-28002A Raster:	<b>N/A</b>
MIL-D-28003 CGM:	<b>Pass</b>

Formal results with associated disclaimer are documented and available from the AFCTB.

**Air Force CALS Test Bed  
HQ ESC/AV-2P  
4027 Colonel Glenn Highway, Suite 300  
Dayton, OH 45431-1672  
Phone: 513-257-3085      FAX: 513-257-5881**

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## 1. Introduction

### 1.1 Background

The Department of Defense (DoD) Air Force Continuous Acquisition and Life-cycle Support (CALS) Test Network (AFCTN) is conducting tests of the military standard for the Automated Interchange of Technical Information, MIL-STD-1840A, and its companion suite of military specifications. The AFCTN is a DoD sponsored confederation of voluntary participants from industry and government managed by the Electronic Systems Center (ESC).

The primary objective of the AFCTN is to evaluate the effectiveness of the CALS standards for technical data interchange and to demonstrate the technical capabilities and operational suitability of those standards. Two general categories of tests are performed to evaluate the standards; formal and informal.

Formal tests are large and comprehensive, which follow a written test plan, require specific authorization from the DoD, and may take months to prepare, execute, and report.

Informal tests are quick and short, used by the AFCTN technical staff, to broaden the testing base. They include representative samples of the many systems and applications used by AFCTN participants. They also allow the AFCTN staff to gain feedback from many industry and government interpretations of the standards, to increase the base of participation in the CALS initiative, and respond to the many requests for help that come from participants. Participants take part voluntarily, benefit by receiving an evaluation of their latest implementation (interpretation) of the standards, interact with the AFCTN technical staff, gain experience using the standards, and develop increased confidence in them. The results of informal tests are reported in Quick Short Test Reports (QSTRs) that briefly summarize the standard(s) tested, the hardware and software used, the nature of the test, and the results.

## **1.2 Purpose**

The purpose of the informal test, reported in this QSTR, was to analyze Texas Instruments' interpretation and use of the CALS standards, in transferring technical publication illustration data. Texas Instruments used its CALS Technical Data Interchange System to produce data, in accordance with the standards, and delivered it to the AFCTN technical staff using an electronic transfer.

## 2. Test Parameters

**Test Plan:** AFCTB 94-024

**Date of Evaluation:** 06 April 1994

**Evaluator:**  
George Elwood  
Air Force CALS Test Bed  
DET 2 HQ ESC/AV-2P  
4027 Colonel Glenn Hwy  
Suite 300  
Dayton OH 45431-1672

**Data Originator:**  
Michael Hurn  
Texas Instruments  
M/S 8420  
6500 Chase Oaks Blvd  
P.O. Box 869305  
Plano TX 75086  
(214) 575-3368  
(214) 575-6807 (Fax)

**Data Description:** Technical Manual Test  
1 Document Declaration file  
1 Computer Graphics Metafile (CGM) file

**Data Source System:** 1840

**HARDWARE**  
IBM Compatible 486DX/33  
PC With 8 MB RAM  
420 MB Disk Drive  
1.4 MB Floppy Drive  
15" Color Monitor

**SOFTWARE**  
MS DOS v6.0  
MS Windows v3.1

CGM

**HARDWARE**  
IBM Compatible 486DX/33

**SOFTWARE**  
Micrografx Charisma v4.0

Evaluation Tools Used:

MIL-STD-1840A (TAPE)  
SUN 3/280  
AFCTN Tapetool v1.2.10 UNIX

MIL-D-28003 (CGM)  
HP 735  
InterCAP X-Change v7.82  
SGI Indigo 2  
IGES Data Analysis (IDA) CALSView  
SUN SparcStation 2  
ArborText cgm2draw  
Carberry CADLeaf Plus v3.1  
Island Software IslandDraw v3.0  
Island Software IslandDraw v4.0  
PC 486/50  
Advanced Technology Center  
(ATC) MetaCheck R 2.10  
Software Publishing Corporation  
(SPC) Harvard Graphics v3.05  
Inset Systems HiJaak Pro  
Lotus Freelance v2.01  
Micrografx Designer v4.0  
Corel Ventura Publisher

Standards  
Tested:  
MIL-STD-1840A  
MIL-D-28003

### **3. 1840A Analysis**

#### **3.1 External Packaging**

The files arrived at the Air Force CALS Test Bed (AFCTB) via an electronic transfer to the internet server. No physical media was exchanged or evaluated.

#### **3.2 Transmission Envelope**

The files received by the AFCTB contained MIL-STD-1840A files. The files were named per the standard conventions.

##### **3.2.1 Tape Formats**

No tape was submitted for evaluation.

##### **3.2.2 Declaration and Header Fields**

No errors were found in the Document Declaration file and data file headers. The file set submitted to the AFCTB meets the requirements defined in MIL-STD-1840A.

### **4. IGES Analysis**

No Initial Graphics Exchange Specification (IGES) files were included in this evaluation.

### **5. SGML Analysis**

No Standard Generalized Markup Language (SGML) files were included in this evaluation.

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## 6. Raster Analysis

No Raster files were included in this evaluation.

## 7. CGM Analysis

The transfer set contained one CGM file. The file was evaluated using ATC's *MetaCheck* with CALS options. This utility reported no CALS errors.

The CGM file was evaluated using the beta AFCTN *validcgm* utility which reported no CALS errors.

The AFCTB has several tools for viewing CGM files. These tools are not used to generate a pass/fail but to report how commercially available software can handle the files. Many of these products are used in the development of technical publications and are good indicators of usability. The use of these products is not an endorsement nor an indication of CALS capability. All operations were performed using the default settings.

The CGM file was converted using ArborText's *cgm2draw* utility without a reported error. The resulting files were read into Island Software's *IslandDraw v3.1*. When displayed and printed the box around the image was missing. Some variation was noted in the text between individual letters.

According to Chris Moffett of ArborText, "This (or these) problem(s) may be due {to} the method in which the original file was generated."

The file was read into Carberry's *CADLeaf* software and displayed. Some variation was noted in the text between individual letters.

The file was read into IDA's *CALSVIEW* without a reported error. Some variation was noted in the text between individual letters.

The file was imported into the Micrografx *Designer* without a reported error. The external fuel tanks were displayed with solid lines vs the dashed lines in other applications.

According to Michael Harrison of Micrografx, "The version of Micrografx Designer used with this report has been replaced with Designer version 4.1TE which reads and prints these files successfully."

The file was imported into Lotus' Freelance and displayed with no noted problems. The dotted lines indicating the external fuel tanks are very fine.

The file was imported into SPC's Harvard Graphics v3.05 without a reported error. When displayed on the screen the image appeared to be correct and complete. The initial printing resulted in a large black area with the filled areas white. The image was ungrouped and the white background was removed. This provided a good screen display. The printed output had many missing entities. On the third attempt a color background was inserted. The screen display appeared correct, and the printed output had noted problems. The individual letters which were noted above were highlighted.

The file was read into Inset Systems' HiJaak Pro without a reported error. No problems were noted on the screen or output, with the exception of the external fuel tanks being displayed with solid lines.

The file was imported directly into Island Software's IslandDraw v4.0 without a reported error. Some variation was noted between individual letters in the text.

The file was read into InterCAP's X-Change without a reported error. Some variation was noted between individual letters in the text.

The file was imported into Corel's Ventura Publisher without a reported error. The box around the image was noted as missing.

The CGM file is reported as meeting the specification defined in MIL-D-28003. The image displayed without any major problems using the applications available in the AFCTB.

## 8. Conclusions and Recommendations

The electronic submission by Texas instruments is correct. No errors were reported in the CALS Document Declaration file or data file headers. The file set meets the CALS MIL-STD-1840A requirements.

The CGM file had no reported errors. The image displayed with minor variations in individual letters. The CGM file meets the CALS MIL-D-28003 specification.

The electronic submission by Texas Instruments meets the CALS MIL-STD-1840A requirements.

## 9. Appendix A - Tapetool Report Logs

### 9.1 Tape Catalog

CALS Test Network Catalog Evaluation - Version 1.2; Release 10 (C)

Standards referenced:

MIL-STD-1840A (1987) - Automated Interchange of Technical Information  
ANSI X3.27 (1987) - File Structure and labeling of Magnetic Tapes  
for Information Interchange  
ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Tue Apr 5 16:47:37 1994

MIL-STD-1840A File Catalog

File Set Directory: /cals/u1210/Set056

Page: 1

File Name	File Type	Record Format/ Length	Block Length Length/Total	Selected/ Extracted
D001	Document Declaration	D/00256	02048/000000	Extracted
D001C001	CGM	F/00080	00800/000000	Extracted

Catalog Process terminated normally.

## 9.2 Tape File Set Validation Log

CALS Test Network File Set Evaluation - Version 1.2; Release 10 (C)

Standards referenced:

MIL-STD-1840A (1987) - Automated Interchange of Technical Information

Tue Apr 5 16:47:37 1994

MIL-STD-1840A File Set Evaluation Log

File Set: Set056

Found file: D001

Extracting Document Declaration Header Records...

Evaluating Document Declaration Header Records...

srcsys: Texas Instruments P.O.Box 869305 Plano, TX 75086 Mail Station 8420

srcdocid: CALS TEST NETWORK CGM TEST USING CHARISMA 4.0

srcrelid: NONE

chglvl: ORIGINAL

dteisu: 19940330

dstsys: AIR FORCE CALS TEST BED 4027 COLONEL GLENN HIGHWAY SUITE 300 DAYTON, OHIO 4543

dstdocid: TEXAS INSTRUMENTS CGM USING CHARISMA 4.0

dstrelid: NONE

dtetrn: 19940330

dlvacc: NONE

filcnt: C1

ttlcls: UNCLASSIFIED

doccls: UNCLASSIFIED

doctyp: Product Data

docttl: NONE

Found file: D001C001

Extracting CGM Header Records...

Evaluating CGM Header Records...

srcdocid: NONE

dstdocid: NONE

txtfilid: NONE

figid: NONE

srcgph: NONE

doccls: UNCLASSIFIED

notes: FILE GENERATED BY CHARISMA VERSION 4.0

Saving CGM Header File: D001C001\_HDR

Saving CGM Data File: D001C001\_CGM

Evaluating numbering scheme...

No errors were encountered during numbering scheme evaluation.

Numbering scheme evaluation complete.

Checking file count...

No errors were encountered during file count verification.

File Count verification complete.

No errors were encountered in Document D001.

No errors were encountered in this File Set.

MIL-STD-1840A File Set Evaluation Complete.

## 10. Appendix B - Detailed CGM Analysis

### 10.1 File D001C001

#### 10.1.1 Parser Log MetaCheck

MetaCheck Version 2.05 -- CGM/MIL-D-28003 Conformance Analyzer  
Copyright 1988-91 CGM Technology Software  
Execution Date: 04/06/94 Time: 11:50:58

Metafile Examined : i:\94024\c001.cgm

Pictures Examined : All  
Elements Examined : All  
Bytes Examined : All

===== Trace Report =====

Tracing not selected.

===== CGM Conformance Violation Report =====

No Errors Detected

===== CALS CGM Profile (MIL-D-28003) Report =====

No profile discrepancies detected.

===== Conformance Summary Report =====

MetaCheck Version 2.05 -- CGM/MIL-D-28003 Conformance Analyzer  
Copyright 1988-91 CGM Technology Software  
Execution Date: 04/06/94 Time: 11:50:59

Name of CGM under test: i:\94024\c001.cgm  
Encoding : Binary

Pictures Examined : All  
Elements Examined : All  
Bytes Examined : All

BEGIN METAFILE string : "Micrografx CGM Translator, version 4.00"  
METAFILE DESCRIPTION : "MIL-D-28003/BASIC-1"

Picture 1 starts at octet offset 116; string contains: "1"

Conformance Summary : This file conforms to the CGM specification.  
This file meets the CALS CGM Profile (MIL-D-28003).

Summary of Testing Performed and Errors Found:

1 Pictures Tested  
283 Elements Tested  
40346 Octets Tested

=====|  
| No Errors Were Detected |  
=====

===== End of Conformance Report =====

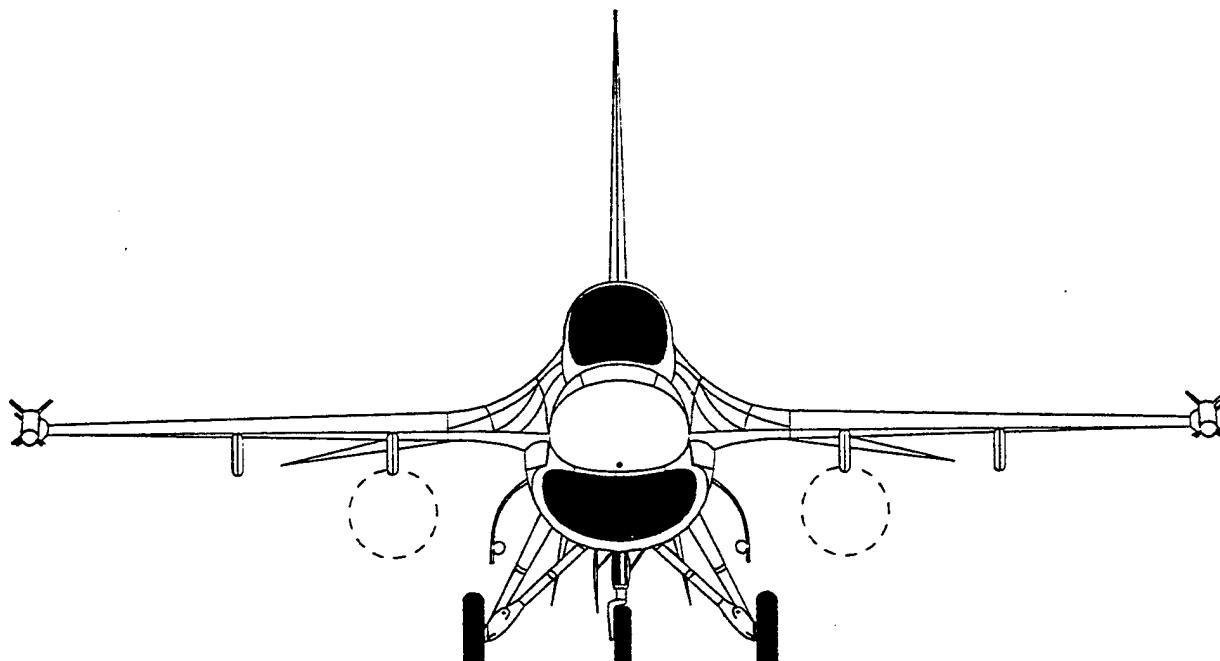
## 10.1.2 validcgm Log

Analysis for file c001.cgm using table table

```
(0, 1) occurred 1 time
(0, 2) occurred 1 time
(0, 3) occurred 1 time
(0, 4) occurred 1 time
(0, 5) occurred 1 time
(1, 1) occurred 1 time
(1, 2) occurred 1 time
(1, 3) occurred 1 time
(1, 4) occurred 1 time
(1, 5) occurred 1 time
(1, 6) occurred 1 time
(1, 7) occurred 1 time
(1, 10) occurred 1 time
(1, 11) occurred 1 time
(2, 1) occurred 1 time
(2, 2) occurred 1 time
(2, 3) occurred 1 time
(2, 5) occurred 1 time
(2, 6) occurred 1 time
(2, 7) occurred 1 time
(3, 1) occurred 1 time
(4, 1) occurred 83 times
(4, 7) occurred 84 times
(4, 11) occurred 8 times
(4, 17) occurred 3 times
(4, 18) occurred 2 times
(5, 2) occurred 7 times
(5, 3) occurred 2 times
(5, 4) occurred 7 times
(5, 14) occurred 1 time
(5, 22) occurred 22 times
(5, 23) occurred 23 times
(5, 27) occurred 1 time
(5, 28) occurred 2 times
(5, 29) occurred 7 times
(5, 30) occurred 10 times
```

### 10.1.3 Output CADLeaf

**CHARISMA VERSION 4.0**

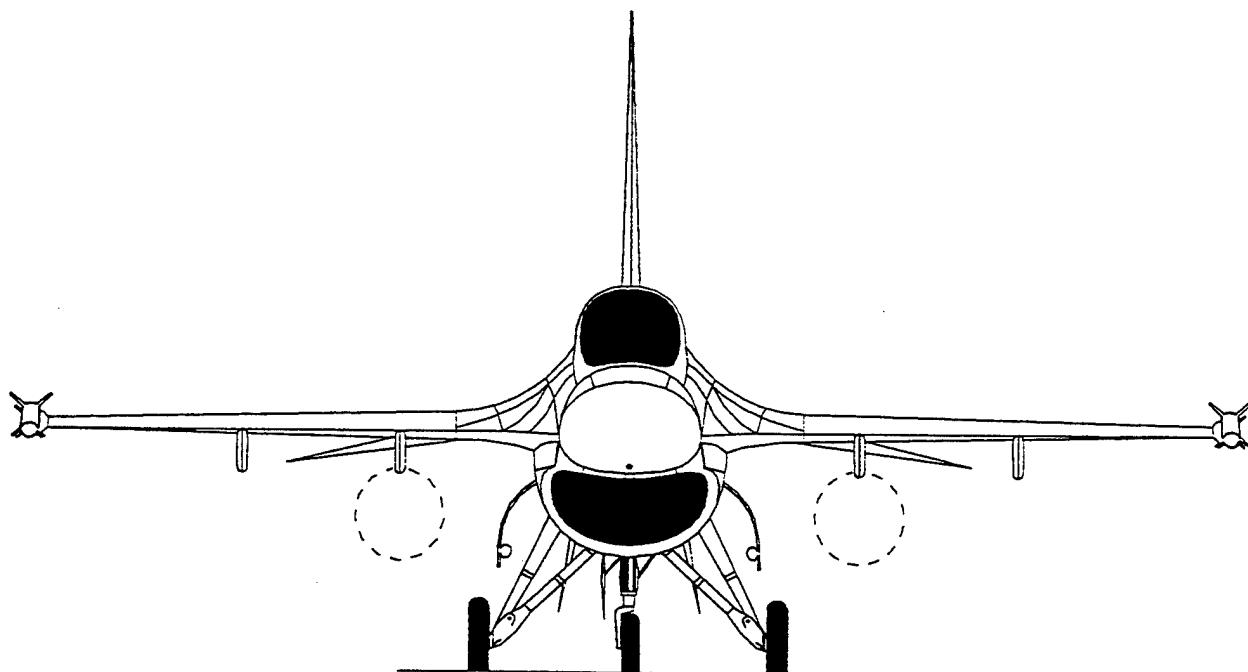


**F-16 FRONT VIEW**

---

#### 10.1.4 Output CALSView

**CHARISMA VERSION 4.0**

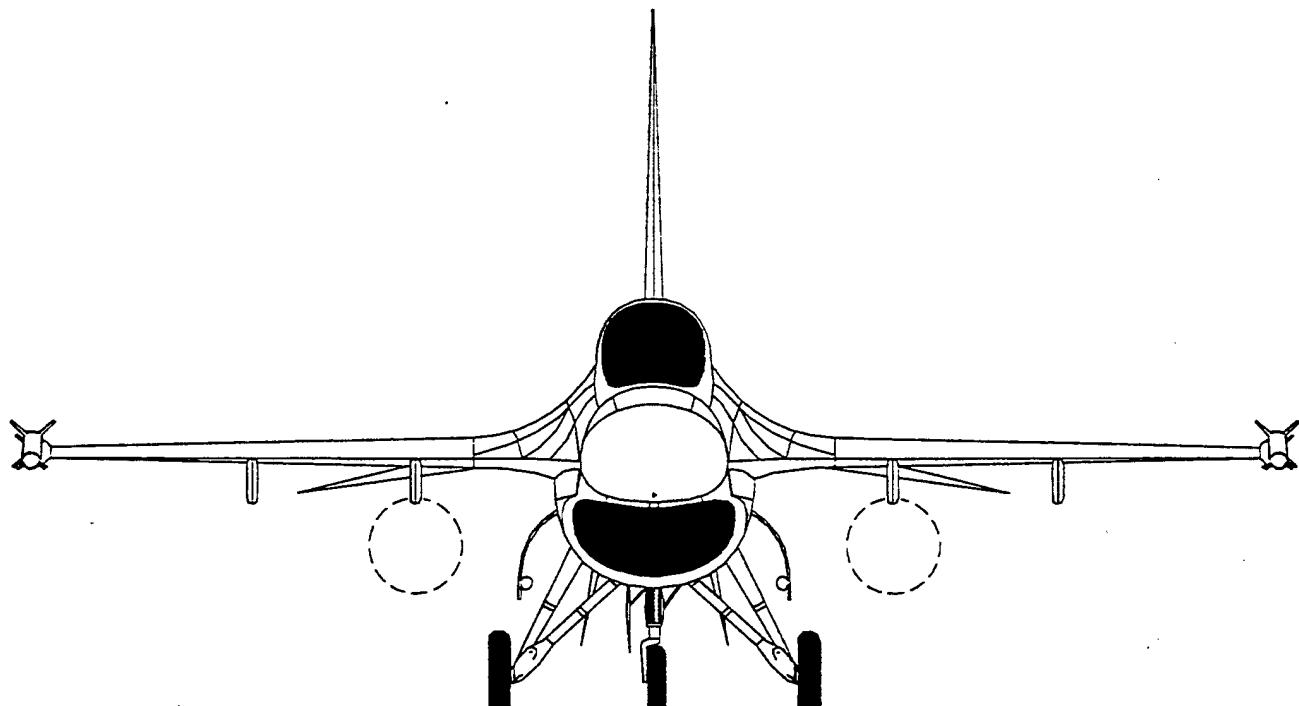


**F-16 FRONT VIEW**

### 10.1.5 Output cgm2draw/IslandDraw

C2D/ID

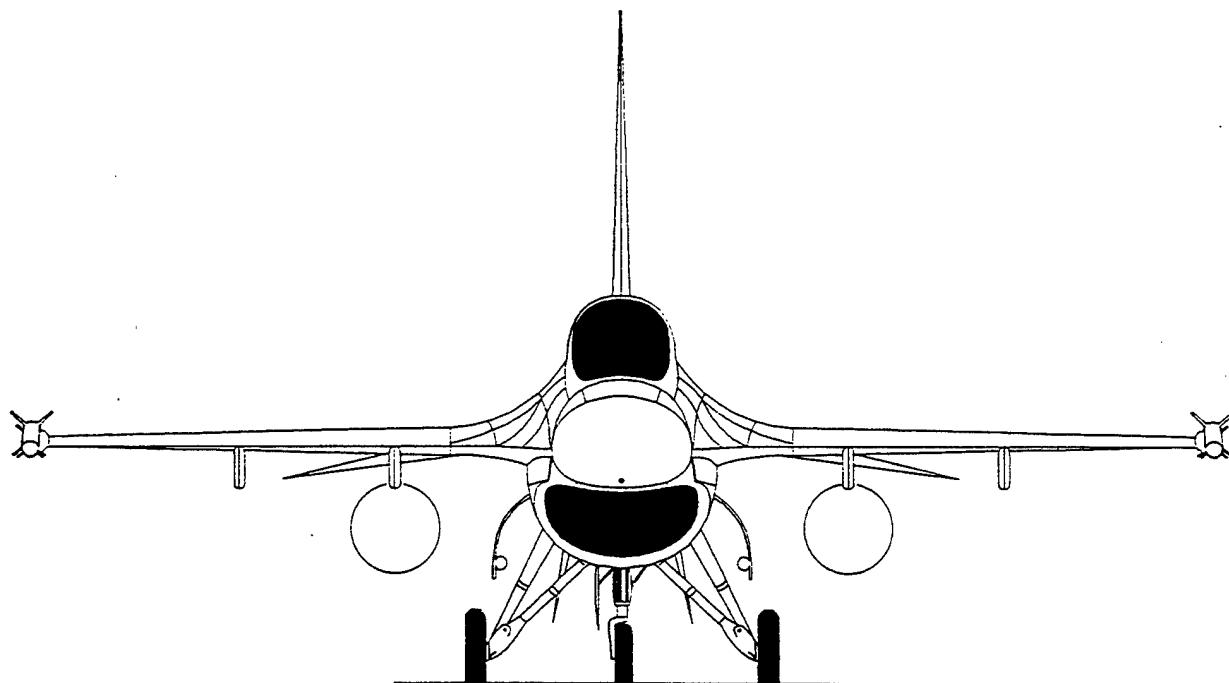
**CHARISMA VERSION 4.0**



**F-16 FRONT VIEW**

### 10.1.6 Output Designer

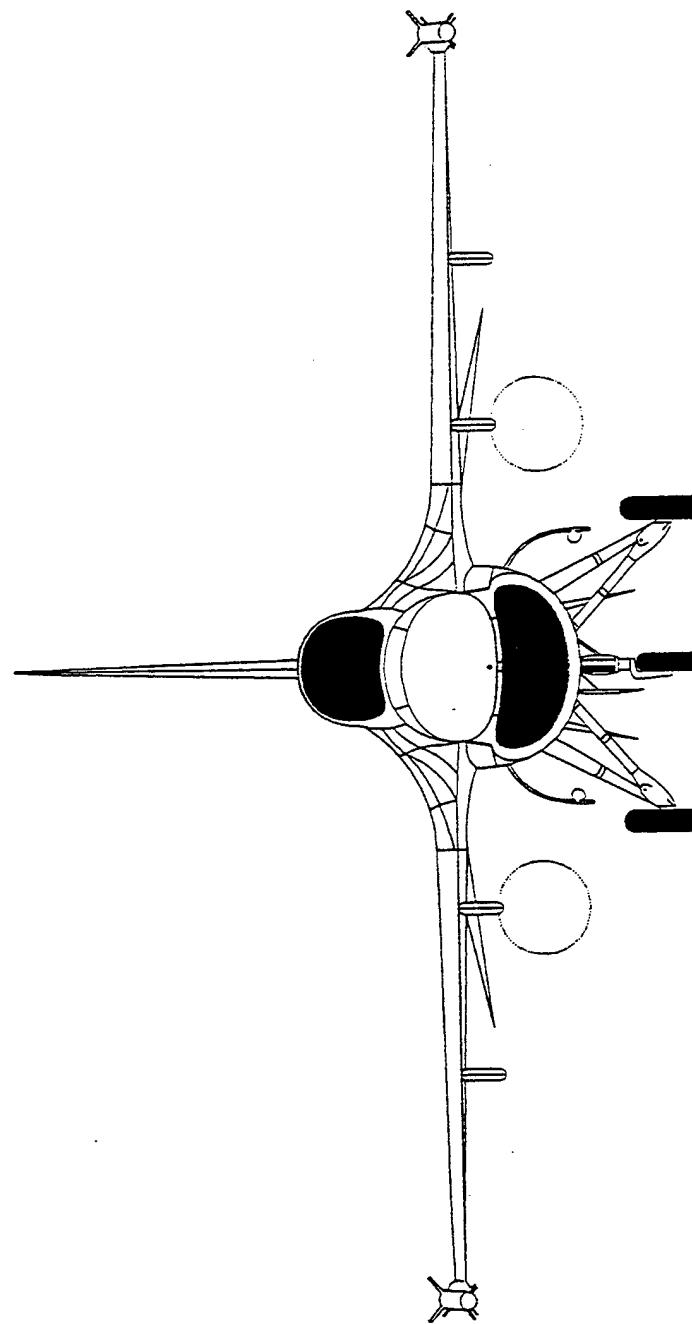
#### CHARISMA VERSION 4.0



F-16 FRONT VIEW

### 10.1.7 Output Freelance

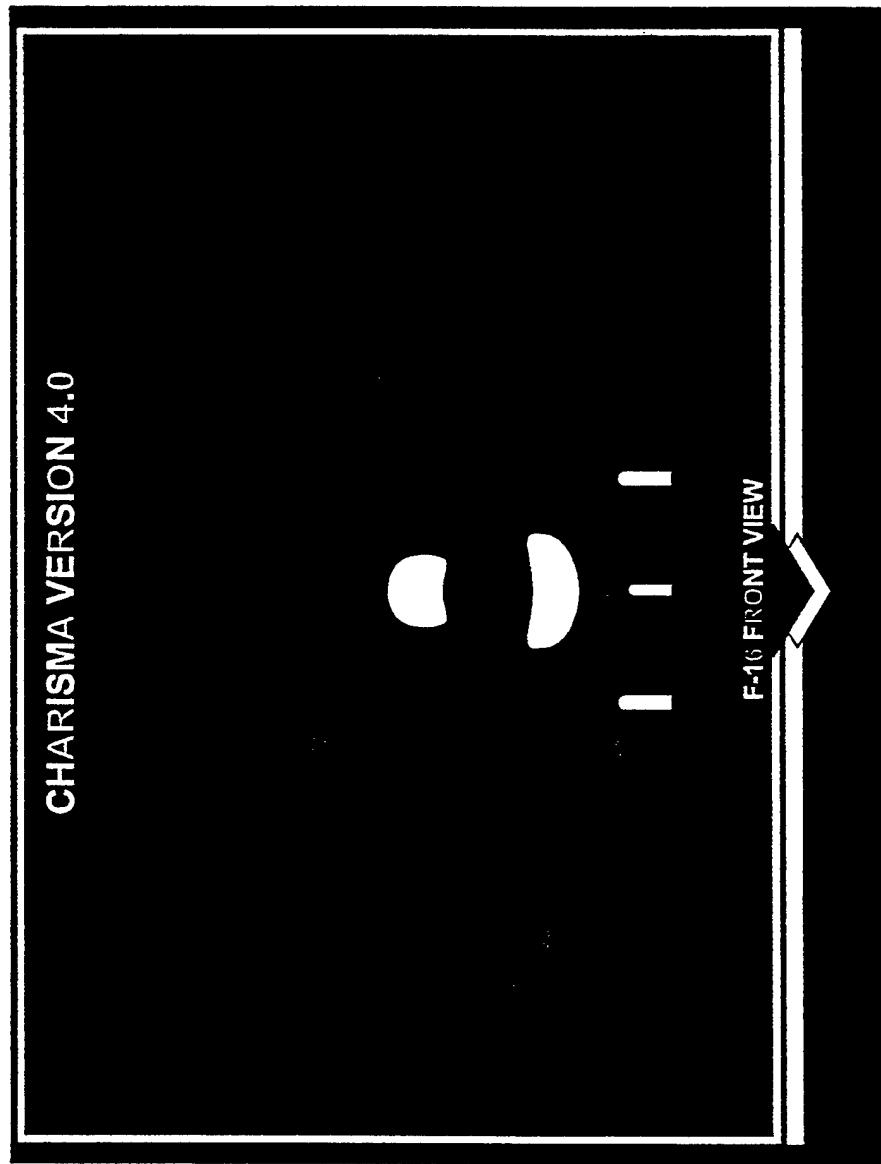
**CHARISMA VERSION 4.0**



F-16 FRONT VIEW

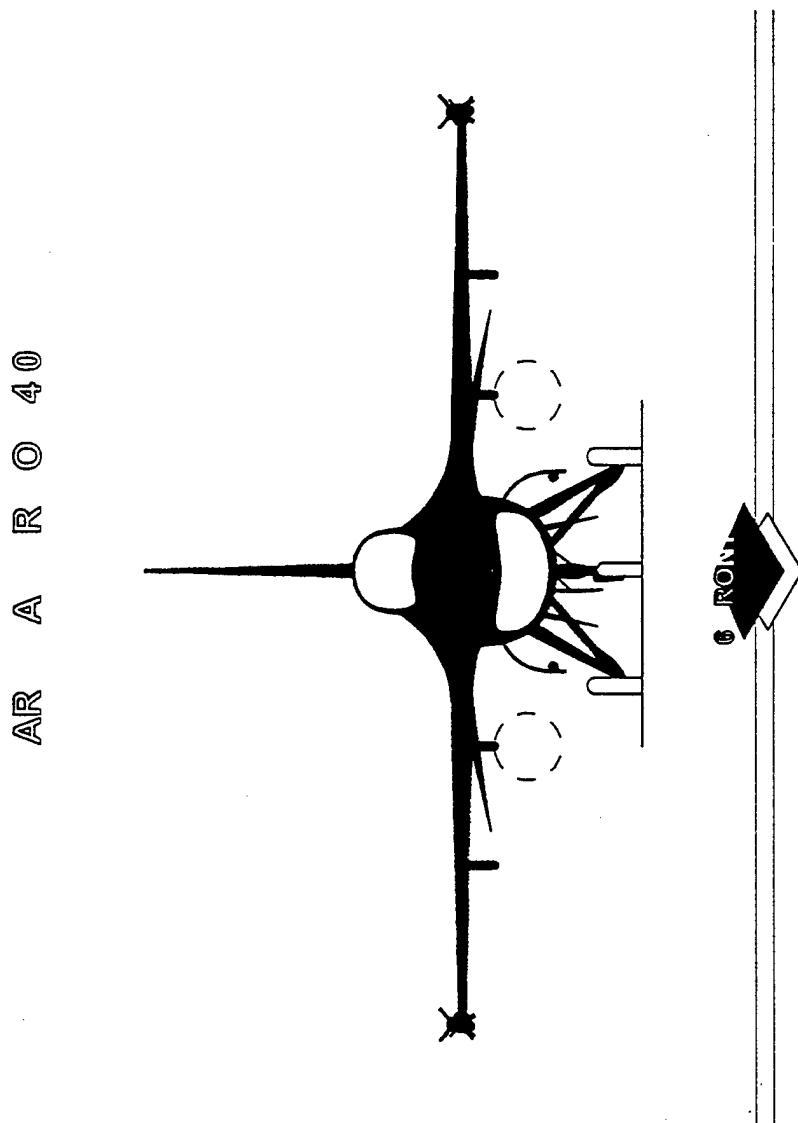
---

### 10.1.8 Output Harvard Graphics



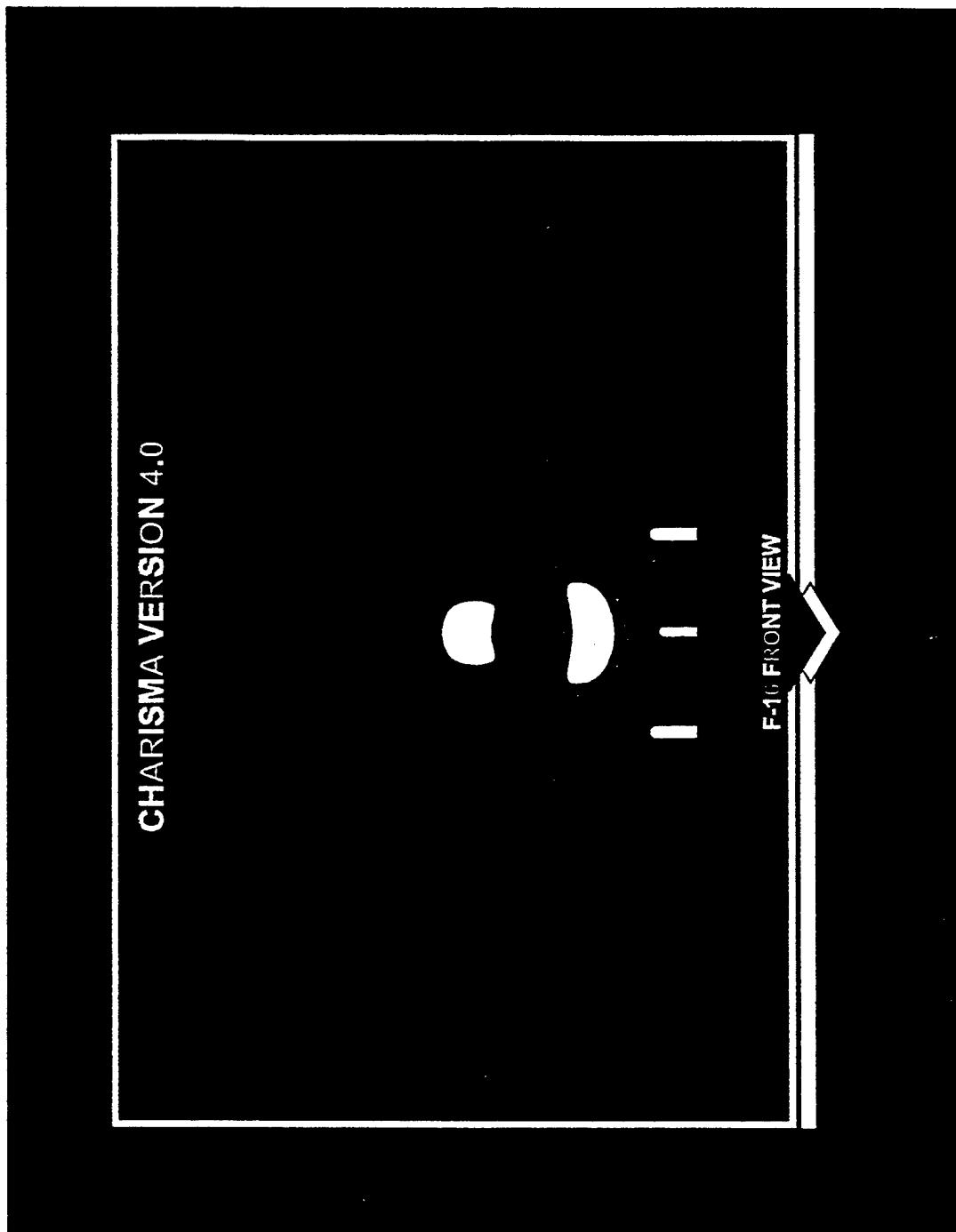
HG3.05

### 10.1.9 Output Harvard Graphics



HG3.05

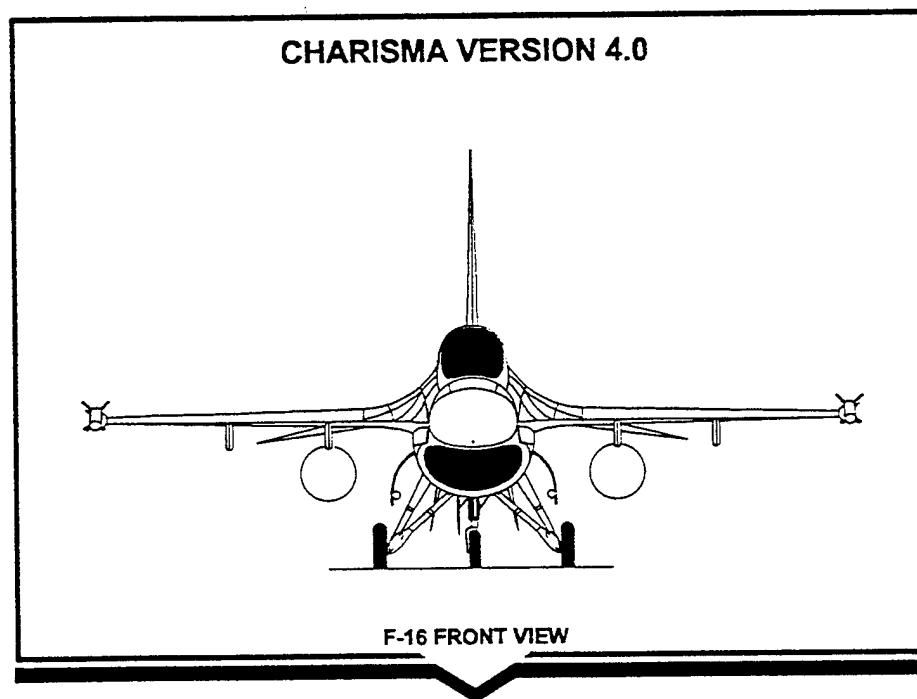
### 10.1.10 Output Harvard Graphics



HG3.05

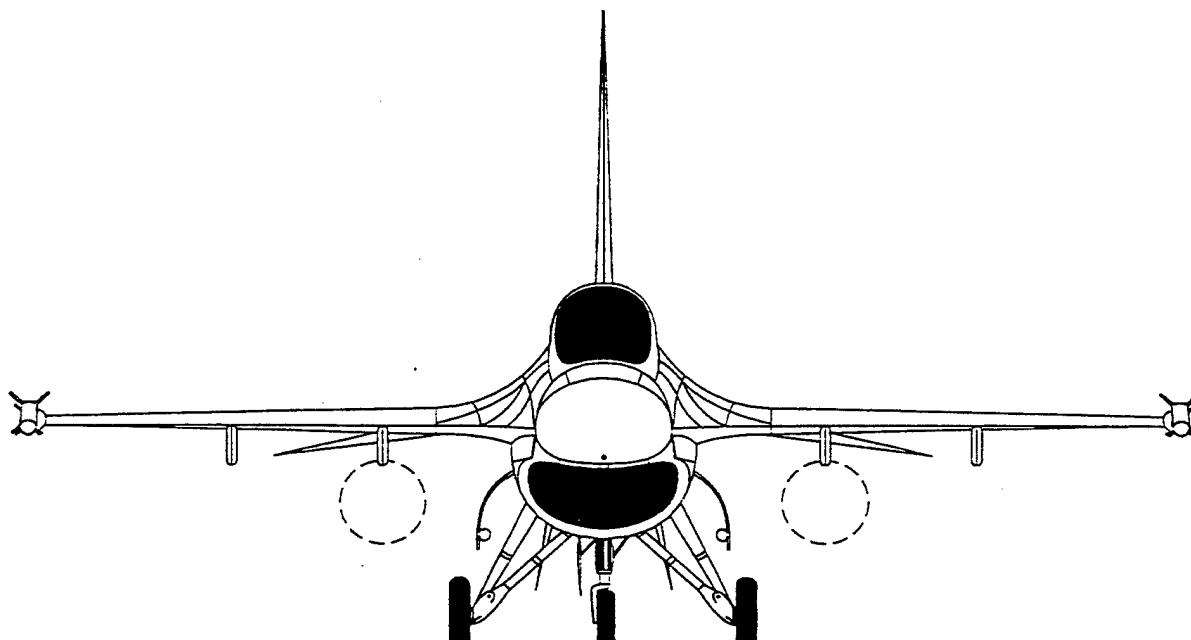
---

### 10.1.11 Output HiJaak Pro



### 10.1.12 Output IslandDraw v4.0

#### CHARISMA VERSION 4.0

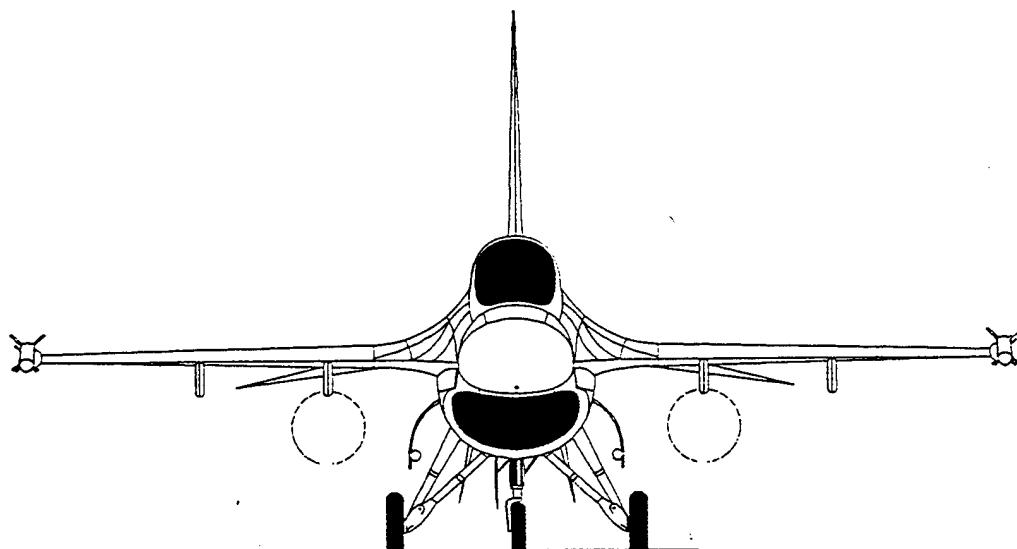


F-16 FRONT VIEW

ID4.0

### 10.1.13 Output Ventura Publisher

**CHARISMA VERSION 4.0**

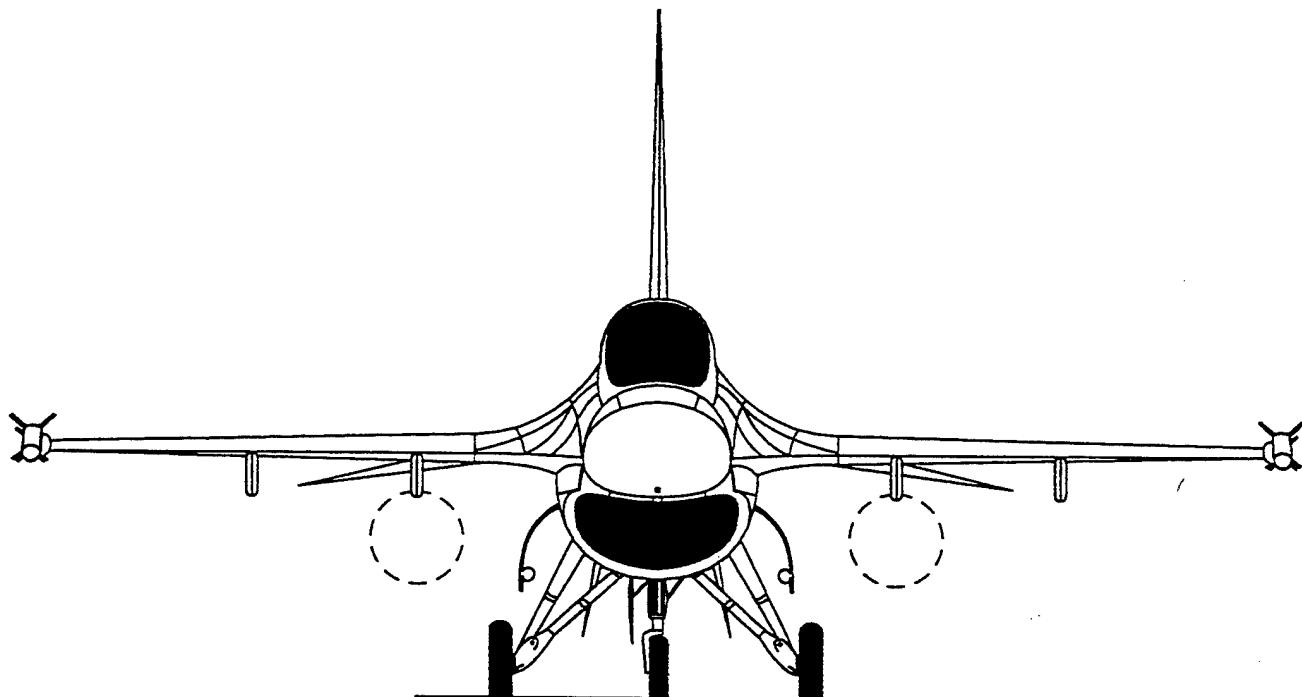


**F-16 FRONT VIEW**

---

### 10.1.14 Output X-Change

## CHARISMA VERSION 4.0



F-16 FRONT VIEW